

# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

## PCT

### NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT OR THE DECLARATION

(PCT Rule 44.1)

To:

PARK Young-Woo  
5F, Seil Building, #727-13,  
Yoksam-dong,  
Gangnam-gu,  
135-921 Seoul  
Republic of Korea

Date of mailing  
(day/month/year) 10 March 2004 (10.03.2004)

Applicant's or agent's file reference

LW8075PC

#### IMPORTANT NOTIFICATION

International application No.

PCT/ KR 2003/002270

International filing date (day/month/year)

27 October 2003 (27.10.2003)

Applicant

SAMSUNG ELECTRO-MECHANICS CO., LTD

1. ☒ The applicant is hereby notified that the international search report has been established and is transmitted herewith.

#### Filing of amendments and statements under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

**When?** The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

**Where?**

Directly to the International Bureau of WIPO, 34 chemin des Colombettes  
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 740.14.35

2. ☐ The applicant is hereby notified that no international search will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.
3. ☐ With regard to the protest against payment of (an) initial fee(s) under Rule 40.2, the applicant is notified that:
- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the text of both the protest decision thereon to the designated Offices
  - ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

#### 4. Reminder:

Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

Within 19 months from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later); otherwise, the applicant must, within 30 months from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of 30 months (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide* Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the ISA/AT

Austrian Patent Office  
Dresdner Straße 87  
A-1200 Vienna/Austria  
FAX No. +43 / 1 / 53424-200

Authorized officer

Wolf

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## NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under Article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the *PCT Applicant's Guide*, a publication of WIPO.

In these Notes, "Article," "Rule" and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions, respectively.

### INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

#### What parts of the international application may be amended ?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Preliminary Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

**When ?** Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

#### Where not to file the amendments ?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

**How ?** Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

#### What documents must/may accompany the amendments ?

**Letter (Section 205(b)):**

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>LW8075PC</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/KR 03/02270</b>	International filing date (day/month/year) <b>27 October 2003 (27.10.2003)</b>	(Earliest) Priority Date (day/month/year) <b>19 November 2002 (19.11.2002)</b>
Applicant <b>SAMSUNG ELECTRO-MECHANICS CO., LTD</b>		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 5 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23:1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (See Box II).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.: 1c

☒ as suggested by the applicant.

☐ None of the figures.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/KR 03/02270-0

## Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

There are provided a TFT substrate for an LCD apparatus and a method of manufacturing the same. A substrate (10), a diffusion barrier layer (11) and a copper alloy layer (12) are formed on the TFT substrate, consecutively. The copper alloy includes a material from about 0.5at% to about 15 at% to form a gate wiring layer. The material is used to form the diffusion barrier layer (11). A compound that comprises a material such as Zr, Ti, Hf, V, Ta, Ni, Cr, Nb, Co, Mn, Mo, W, Rh, Pd, Pt, etc. is deposited on the diffusion barrier layer (11) to a thickness from about 50Å to about 5,000Å. The deposited compound is then heat treated to convert the deposited compound into a silicide compound (11b). The transistor substrate has low resistance and high conductance. Also, etching process is simplified, and a mutual diffusion is prevented by means of the thin diffusion barrier layer.

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/KR 03/02270-0

## CLASSIFICATION OF SUBJECT MATTER

IPC<sup>7</sup>: H01L 21/28, 21/3205, 29/786, 27/00, G02F 1/136, 1/1345, C22F 1/08, C22C 9/10

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC<sup>7</sup>: H01L, G02F, C22F, C22C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI; EPODOC; PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6211084 B1 (NGO et al.) 3 April 2001 (03.04.01) <i>abstract, column 3, lines 8-51.</i>	1,6,10,15
A	US 6329701 B1 (NGO et al.) 11 December 2001 (11.12.01) <i>abstract, claims.</i>	1,6,10,15
A	EP 0260906 A2 (FUJITSU) 23 March 1988 (23.03.88) <i>claims, abstract.</i>	1,6,10,15
A	JP 2000 277456 A (TOSHIBA) 6 October 2000 (06.10.00) <i>fig. 1, abstract.</i>	1,6,10,15
A	US 2002/0123220 A1 (SAMBUCETTI et al.) 5 September 2002 (05.09.02) <i>abstract.</i>	1,6,10,15
A	US 5932907 A (GRILL et al.) 3 August 1999 (03.08.99) <i>abstract, figs. 1-3, corresponding description.</i>	1,6,10,15

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

\* Special categories of cited documents:

„A“ document defining the general state of the art which is not considered to be of particular relevance

„E“ earlier application or patent but published on or after the international filing date

„L“ document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

„O“ document referring to an oral disclosure, use, exhibition or other means

„P“ document published prior to the international filing date but later than the priority date claimed

„T“ later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

„X“ document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

„Y“ document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

„&“ document member of the same patent family

Date of the actual completion of the international search

19 December 2003 (19.12.2003)

Date of mailing of the international search report

10 March 2004 (10.03.2004)

Name and mailing address of the ISA/AT

Austrian Patent Office  
Dresdner Straße 87, A-1200 Vienna

Facsimile No. 1/53424/535

Authorized officer

HEINICH W.

Telephone No. 1/53424/454

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR 03/02270-0

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 08 102502 A (IBM) 16 April 1996 (16.04.96) <i>figures, abstract.</i>	1,6,10,15
A	US 2002/0096681 A1 (YAMAZAKI et al.) 25 July 2002 (25.07.02) <i>abstract.</i>	1,6,10,15
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10/535304

# INTERNATIONAL SEARCH REPORT

Information on patent family members

JC20 Recd T/PTO 18 MAY 2005

International application No.

PCT/KR 03/02270-0

Patent document cited in search report			Publication date		Patent family member(s)	Publication date
EP	A	260906			DE T 3784605T	1993-06-17
					DE D 3784605D	1993-04-15
					KR B 9007147	1990-09-29
					EP A 0260906	1988-03-23
					JP A 63073645	1988-04-04
					JP A 1059938	1989-03-07
JP	A	8102502A 2			none	
JP	A	20002774 56A2			none	
US	A	20020096 681			none	
US	A	20020123 220			none	
US	A	5932907	1999-08-03	JP	A 11074484	1999-03-16
US	B	6211084	2001-04-03		none	
US	B	6329701	2001-12-11		none	

## PATENT COOPERATION TREATY

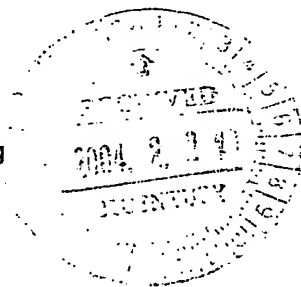
PCT

From the INTERNATIONAL BUREAU

NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

To:

PARK, Young-Woo  
5F., Seil Building  
#727-13, Yoksam-dong  
Gangnam-gu  
Seoul 135-921  
Republic of Korea



Date of mailing (day/month/year) 12 February 2004 (12.02.2004)	<b>IMPORTANT NOTIFICATION</b>
Applicant's or agent's file reference LW8075PC	
International application No. PCT/KR2003/002270	International filing date (day/month/year) 27 October 2003 (27.10.2003)

## 1. The following indications appeared on record concerning:

☒ the applicant      ☐ the inventor      ☐ the agent      ☐ the common representative

Name and Address SAMSUNG ELECTRONICS CO., LTD. 416, Maetan-dong, Paldal-gu, Suwon-si Gyeonggi-do 442-742 Republic of Korea	State of Nationality KR	State of Residence KR
	Telephone No. 82-31-209-4577	
	Facsimile No. 82-31-209-6054	
	Teleprinter No.	

## 2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person      ☐ the name      ☒ the address      ☐ the nationality      ☐ the residence

Name and Address SAMSUNG ELECTRONICS CO., LTD. 416, Maetan-dong Yeongtong-gu Suwon-si Gyeonggi-do 442-742 Republic of Korea	State of Nationality KR	State of Residence KR
	Telephone No. 82-31-209-4577	
	Facsimile No. 82-31-209-6054	
	Teleprinter No.	

## 3. Further observations, if necessary:

## 4. A copy of this notification has been sent to:

☒ the receiving Office      ☐ the designated Offices concerned  
☒ the International Searching Authority      ☐ the elected Offices concerned  
☐ the International Preliminary Examining Authority      ☐ other:

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 338-70-90	Authorized officer Christina PARIANOU Telephone No. (41-22) 338 9999
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## PCT COOPERATION TREATY

PCT

NOTIFICATION CONCERNING  
SUBMISSION OR TRANSMITTAL  
OF PRIORITY DOCUMENT

(PCT Administrative Instructions, Section 411)

From the INTERNATIONAL BUREAU

To:

PARK, Young-Woo  
5F., Seil Building  
#727-13, Yoksam-dong  
Gangnam-gu  
Seoul 135-921  
Republic of Korea

Date of mailing (day/month/year) 11 November 2003 (11.11.03)	<b>IMPORTANT NOTIFICATION</b>
Applicant's or agent's file reference LW8075PC	
International application No. PCT/KR03/02270	
International publication date (day/month/year) Not yet published	
International filing date (day/month/year) 27 October 2003 (27.10.03)	Priority date (day/month/year) 19 November 2002 (19.11.02)
Applicant SAMSUNG ELECTRONICS CO., LTD. et al	

1. The applicant is hereby notified of the date of receipt (except where the letters "NR" appear in the right-hand column) by the International Bureau of the priority document(s) relating to the earlier application(s) indicated below. Unless otherwise indicated by an asterisk appearing next to a date of receipt, or by the letters "NR", in the right-hand column, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
2. This updates and replaces any previously issued notification concerning submission or transmittal of priority documents.
3. An asterisk(\*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b). In such a case, **the attention of the applicant is directed to Rule 17.1(c)** which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
4. The letters "NR" appearing in the right-hand column denote a priority document which was not received by the International Bureau or which the applicant did not request the receiving Office to prepare and transmit to the International Bureau, as provided by Rule 17.1(a) or (b), respectively. In such a case, **the attention of the applicant is directed to Rule 17.1(c)** which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

<u>Priority date</u>	<u>Priority application No.</u>	<u>Country or regional Office or PCT receiving Office</u>	<u>Date of receipt of priority document</u>
19 Nove 2002 (19.11.02)	10-2002-0072001	KR	06 Nove 2003 (06.11.03)

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 338-70-90

Authorized officer

Sudha RAMAKRISHNAN

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